08/909,879

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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
08/909,879	08/12/97	PRIEELS J	04012.0188

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EXAMINER	
BUDENS, R	
ART UNIT	PAPER NUMBER
1648	40

DATE MAILED: 09/14/99

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☒ Responsive to communication(s) filed on 6/28/99

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 19-20, 23-24, 28-31 is/are pending in the application.
Of the above, claim(s) _____ is/are withdrawn from consideration.
☐ Claim(s) _____ is/are allowed.
☒ Claim(s) 19-20, 23-24, 28-31 is/are rejected.
☐ Claim(s) _____ is/are objected to.
☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
☐ The specification is objected to by the Examiner.
☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.
☒ received in Application No. (Series Code/Serial Number) 08/356,372.
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of Reference Cited, PTO-892 1 page
☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
☒ Interview Summary, PTO-413 Papers 17, 18, 19
☐ Notice of Draftperson's Patent Drawing Review, PTO-948
☐ Notice of Informal Patent Application, PTO-152

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

The Art Unit location of your application in the Patent and Trademark Office has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1648.

The status of the related application(s) cited at the first page of the specification should be updated, if necessary, to ensure a properly completed file record.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Applicant should note that attached to this Office Action are copies of Interview Summaries, Paper Nos. 17, 18 and 19. A review of the file record indicated that Applicant's copy of the Interview Summaries had not been forwarded to the Applicant. The Examiner regrets any inconvenience on the part of Applicant.

The Examiner acknowledges Applicant's submission of an Appeal Brief. Upon further reconsideration, however, **FINALITY** of the last Office Action is withdrawn. Prosecution before the Examiner is reopened.

The Examiner acknowledges Applicant's Amendments After Final Rejection, Paper Nos. 33 and 38, filed January 26, 1999 and June 28, 1999, respectively. In view of the withdrawal of **FINALITY**, amendments have been entered in the file record. In view of Applicant's Amendments, the status of the claims is as follows: Claims 1-18, 21-22, 25-27 and 32 have been canceled; Claims 19-20, 23-24 and 28-31 are currently pending before the Examiner.

The non-statutory double patenting rejection, whether of the obvious-type or non-obvious-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. ***In re***

Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); _In re Vogel_, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); _In re Van Ornam_, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); _In re Longi_, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and _In re Goodman_, 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321 (b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78 (d).

Effective January 1, 1994, a registered attorney or agent may sign a Terminal Disclaimer. A Terminal Disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 19-20, 23-24 and 28-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2, 5, 7, 9 and 18-21 of U.S. Patent No. 5,750,110. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application represent an obvious species of the generic invention of U.S. Patent No. 5,750,110. The instant claims are directed to the same invention as U.S. 5,750,110 except that the instant invention is limited to an HIV vaccine. However, given the invention of U.S. Patent No. 5,750,110, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the claimed invention was made to use the claimed vaccines and methods of U.S. Patent No. 5,750,110 and to substitute an HIV antigen in place of other antigens for the expected benefit of obtaining a vaccine for treating or preventing HIV infection. One of ordinary skill in the art would have been motivated by the long felt need for a vaccine for HIV and would have had a reasonable expectation of success since the claimed invention of U.S. Patent No. 5,750,110 were broadly claimed and used for many different antigens of widely varying sources.

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 19-20 and 23-24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claimed invention is directed to vaccine compositions to protect against infection by Human Immunodeficiency Virus (HIV) and a method of making the claimed vaccine composition. However, the specification does not provide sufficient guidance to allow one skilled in the art to make and use the claimed invention with a reasonable expectation of success and without undue experimentation. Applicant's specification sets forth no convincing evidence of vaccine efficacy with respect to HIV. Rather, Applicant relies upon the declarations of Dr. Gerald Voss, Paper Nos. 28 and 33, which provide evidence of protection in the SHIV rhesus monkey animal model. This is not persuasive.

It is well known in the art that retroviral infections in general, and HIV infections in particular, are refractory to anti-viral therapies. The obstacles to therapy of HIV are well documented in the literature. These obstacles include: 1) the extensive genomic diversity and mutation rate associated with the HIV retrovirus, particularly with respect to the gene encoding the envelope protein; 2) the fact that the modes of viral transmission include both virus-infected mononuclear cells, which pass the infecting virus to other cells in a covert manner, as well as via free virus transmission; 3) the existence of a latent form of the virus; 4) the ability of the virus to evade immune responses in the central nervous system due to the blood-brain barrier; and 5) the

complexity and variation of the pathology of HIV infection in different individuals. The existence of these obstacles establish that the contemporary knowledge in the art would not allow one skilled in the art to use the claimed invention with a reasonable expectation of success and without undue experimentation.

It is well known in the art that individuals infected with HIV produce neutralizing antibodies and cell mediated responses to the virus, yet these immune responses are not protective and do not prevent the infection from progressing to its lethal conclusion. Further, as taught by Fahey et al. (RR), clinical trials using a variety of immunologically based therapies have not yielded successful results in the treatment and/or prevention of HIV infection (see Table 1). The failure of all immune-system-boosting therapies for treating AIDS is further discussed by Fox (SS). The teachings of Fahey et al. and Fox are further confirmed by Haynes et al. (TT). Haynes et al. teach the major scientific obstacles blocking development of HIV vaccines (see page 40, first column, second full paragraph). Further, Haynes et al. teach that "Current animal models of either HIV or simian immunodeficiency virus (SIV) fall short of precisely mirroring human HIV infection" and that "lacking these models, researchers must turn towards human clinical trials to answer many of the difficult questions about HIV pathogenesis and HIV vaccine development" (see page 40, first column, third full paragraph). Thus, it is clear from the evidence of Fahey et al., Fox, and Haynes et al. that the ability to treat and/or prevent HIV infection is highly unpredictable and has met with very little success.

The Court has indicated that "inherent in the concept of the 'standard experimental animal' is the ability of one skilled in the art to make the appropriate correlations between the results actually observed with the animal experiments and the probable results in human therapy." *In re Hartop*, 135 USPQ 412 at 426 (CCPA

1962). To date, no HIV vaccine has been shown to be effective in humans and, therefore, one skilled in the art can not make the appropriate correlations between animal models of HIV and the probable results in human therapy as required by the courts. This lack of correlative animal models is precisely the point of the statement by Haynes et al. that "lacking these models, researchers must turn towards human clinical trials to answer many of the difficult questions about HIV pathogenesis and HIV vaccine development." Since no animal model of HIV infection is known to reasonably correlate with *in vivo* efficacy in humans, Applicant's reliance on the evidence of Dr. Voss is insufficient to overcome the rejection.

The unpredictability of HIV vaccines is further evidenced by the teachings of Cohen, *Science* 262:980-981, 1993, and Butini et al., *J. Cell. Biochem.*, Suppl. 18B, Abstract J306, 1994. These references have been discussed in depth by the previous Examiner in preceding Office Actions.

It is noted that almost 20 years have elapsed since the identification of the Acquired Immunodeficiency Syndrome (AIDS), more than 15 years since the isolation of HIV-1 and six years since Applicants' filing of their first U.S. application. Considerable resources have been expended throughout that time to find a suitable vaccine for HIV and yet, despite this monumental effort, no such vaccine has as yet been shown to be effective in humans. While several clinical trials are currently in progress, there is no clear indication of a successful vaccine.

Applicants have not provided any convincing evidence that their claimed invention is indeed useful as a therapeutic or preventative for HIV infection and have not provided sufficient guidance to allow one skilled in the art to practice the claimed invention with a reasonable expectation of success and without

undue experimentation. In the absence of such guidance and evidence, the specification fails to provide an enabling disclosure.

Claims 28-31 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabled for enhancing immune responses in non-human animals, does not reasonably provide enablement for enhancing immune responses in humans. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the methods of the claimed invention commensurate in scope with these claims. The only evidence of methods of enhancing immune responses is provided in the declarations of Dr. Voss, discussed above. However, these declarations do not provide any evidence that the methods would also enhance immune responses in humans for the reasons set forth in the preceding rejection. As the claimed invention must be commensurate in scope with the enablement provided by the specification, Applicant should consider limiting the claimed invention to method of enhancing immune responses in non-human animals.

No claim is allowed.

Papers relating to this application may be submitted to Group 1600 by facsimile transmission. The Fax number is (703) 308-4242. Please note that the faxing of such papers must conform with the Notice published in the Official Gazette, 1096 OG 30, (November 15, 1989).

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Robert D. Budens at (703) 308-2960. The Examiner can normally be reached Monday-Thursday from 6:30 AM-4:00 PM, (EST). The Examiner can also

be reached on alternate Fridays. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Chris Eisenschenk, can be reached at (703) 308-0452.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at (703) 308-0196.

Robert D. Budens
Primary Examiner
Art Unit 1648

rdb
September 12, 1999